

CLAIMS

1. A vector which comprises the following constitutional units A and B positioned on the same DNA molecule or on different DNA molecules, respectively, said vector comprising:

a promoter, as Promoter 1, which shows its activity in at least a callus and a plant tissue where a desired gene should be expressed,

a promoter, as Promoter 2, which shows its activity in at least a callus, and

a promoter, as Promoter 3, which shows its activity in at least a plant tissue where Promoter 1 and Promoter 2 do not show their activities,

A: a DNA sequence comprising Promoter 1, an expression inhibitory sequence and a desired gene in which expression is accelerated by Promoter 1 and expression is inhibited by the expression inhibitory sequence;

B: a DNA sequence comprising Promoter 2, an expression inhibitory gene in which expression is accelerated by Promoter 2 to exert function of expression inhibition by the expression inhibitory sequence, Promoter 3, the expression inhibitory sequence, and a gene of a removal reaction-catalyzing enzyme in which expression is accelerated by Promoter 3 and expression is inhibited by the expression inhibitory sequence, wherein the DNA sequence is removed by expression of the gene of a removal reaction-catalyzing enzyme.

2. The vector according to claim 1, wherein

Promoter 1 is a promoter which shows its activity in at least a floral meristematic cell and a callus, but does not show its activity in a meristematic cell of a bud;

Promoter 2 is a promoter which shows its activity in at least a callus, but does not show its activity in a meristematic cell of a bud, Promoter 3 is a promoter which shows its activity in at least a meristematic cell of a bud, and the desired gene is a cell function inhibitory gene.

3. The vector according to claim 1 or 2, wherein Promoter 1 and Promoter 2 each is a promoter which regulates expression of PISTILLATA (PI) gene, APETALA1 (AP1) gene, APETALA2 (AP2) gene, APETALA3 (AP3) gene, AGAMOUS (AG) gene, LEAFY (LFY) gene and/or SEPALLATA3 (SEP3) gene of *Arabidopsis thaliana*, or a tobacco TA29 promoter.

4. The vector according to any one of claims 1 to 3, wherein Promoter 3 is a histone H3 promoter or a histone H4 promoter of a plant, or a promoter which regulates expression of SHOOT MERISTEMLESS (STM) gene and/or CUP-SHAPED COTYLEDON (CUC) gene of *Arabidopsis thaliana*.

5. The vector according to any one of claims 1 to 4, wherein the desired gene is a gene encoding a cytotoxin.

6. The vector according to claim 5, wherein the gene encoding a cytotoxin is a gene encoding Bax, RNase, a protease or a DAM methylase.

7. The vector according to any one of claims 1 to 6, wherein the expression inhibitory sequence is an operator sequence and the expression inhibitory gene is a gene encoding an operator sequence-binding protein.

8. The vector according to claim 7, wherein the operator sequence is a sequence in which a transcription activation region is deleted from lacI gene or yeast GAL4 gene.

9. The vector according to any one of claims 1 to 8, wherein the gene of a removal reaction-catalyzing enzyme is a recombinant enzyme gene in a site-specific recombination system, and the constitutional unit B is interposed between two recognizing sequences which are recognized by a recombinant enzyme encoded by the recombinant enzyme gene and mutually face the same direction.

10. A method for producing a plant transformant while inhibiting expression of a desired gene in a callus, which comprises introducing a gene into a plant cell using the vector according to claim 1, and culturing the plant cell to redifferentiate a plant tissue or organ via a callus.

11. A method for producing a sterile plant, which comprises introducing a gene into a plant cell using the vector according to any one of claims 2 to 9, culturing the plant cell to propagate a callus, and redifferentiating a bud from the callus to produce a plant individual.